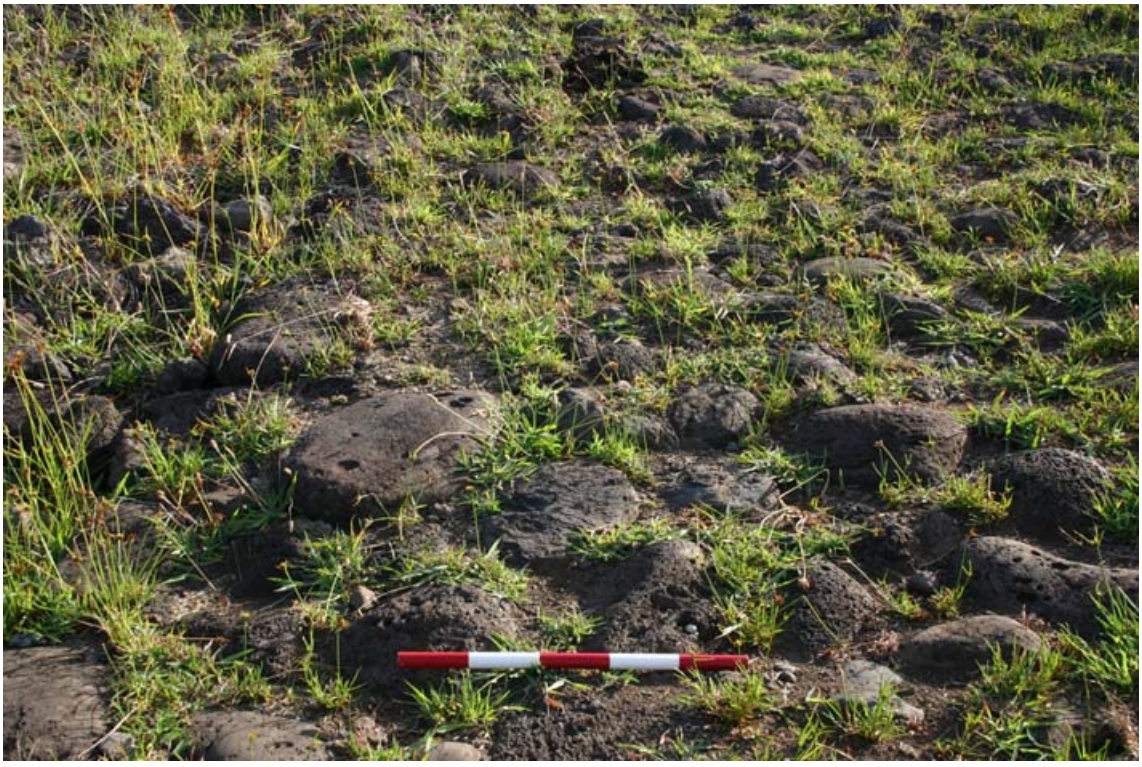
Rapa Nui Landscapes of Construction Project
(LOC 2)

Ahu landscapes — preliminary research assessment of phenomenological walkover surveys (PWSs) conducted along selected sections of the Rapa Nui (Easter Island) coastline



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Rapa Nui Landscapes of Construction

The Rapa Nui Landscapes of Construction Project (LOC) is funded by a grant from the Arts and Humanities Research Council in the UK. Based at the Institute of Archaeology, University College London, the project is directed by Sue Hamilton of UCL (principal investigator) and Colin Richards of the University of Manchester (co-investigator), in collaboration with Kate Welham of Bournemouth University (co-investigator). The University of the Highlands and Islands (Project Partner) is represented by Jane Downes.

On the Island, LOC works with Rapanui elders and students and in close cooperation with the *Corporacion National Forestal* (*CONAF*), Rapa Nui, and the *Museo Antropológico P. Sebastián Englert* (*MAPSE*).

The main aim of the project is to investigate the construction activities associated with the Island's famous prehistoric statues and architecture as an integrated whole. These construction activities, which include quarrying, moving and setting up of the statues are considered in terms of Island-wide resources, social organisation and ideology.

The Project is not just concerned with reconstructing the past of the island, but is also contributing to the 'living archaeology' of the present-day community, for whom it is an integral part of their identity and their understanding and use of the island. LOC is working with the Rapanui community to provide training and help in recording, investigating and conserving their remarkable archaeological past. Fieldwork between 2008 and 2013 was undertaken under a permit issued by the *Consejo de Monumentos Nacionales*, Chile (ORN No 1699 CARTA 720 DEL 31 del 01.2008).

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1. Introduction

Background to the project

Over recent decades work on Rapa Nui settlement, quarrying, resource acquisition, and ceremonial structures has begun to incorporate a symbolic dimension (Van Tilburg & Lee 1987; Martinsson-Wallin 2002), although functionalist explanations of access to land and sea resources and socio-economic premises of territory formation have predominated (McCoy 1979; Shepardson 2005; Stevenson 2002). For the most part the ceremonial platforms (*ahu*) of Rapa Nui, particularly the 'complex *ahu*' with anthropomorphic statues (*moai*), have been studied in terms of their constructional elements, their chronology, and the spatial density and distribution of specific architectural types (Martinsson-Wallin 1994). Strong lineage-based ties between the *ahu* and the land on which they are situated have been inferred, which, on the basis of idealized Polynesian models of chieftain territories, are perceived as having been rationalized in the spatial clustering of *ahu* and their association with hypothesized geometrical segments of territorial space — *tapere*, which extend from the coast towards the interior (or vice versa).

Ahu landscapes

This aspect of the *Rapa Nui Landscapes of Construction* project offers a different approach to previous and current work on the Island in that it is based on fieldwork that emphasizes subject-centred understandings of *ahu* and the landscapes in which these were located — in combination with science-based surface finds mapping. It is interested in place-specific social practice and how understandings of sea and land were potentially linked and interconnected. A focus on 'place' as a point of social practice raises different questions concerning how Rapa Nui monumental landscapes were conceived and constructed. It draws upon contemporary Post-Processual, British academic traditions of landscape archaeology and aspects of their wider European application (Graves & Ladefoged, 2002: 3; Hamilton & Whitehouse 2006; Skeates 2005; Tilley 2004). Such approaches to human-populated landscape spaces adopt the stance that economic and subsistence organization may be wholly subsumed by the ideological factors behind the configuration of architecture and its landscape positioning (Tilley 1994). The method used was to systematically walk the *ahu* landscapes and to combine textual recording with GPS satellite mapping of the landscape and locale-specific characteristics of the *ahu* and their associated architectural components. This work was guided by a focus on body-centred *sensory* perceptions of space (phenomenology), in particular perceptions of visibility, sound, and the orientations of features and place with respect to human body positioning and the sea. The process as a whole was reflexively informed by what we already know about the archaeology and palaeoenvironment of these spaces. Our textual recording of observations was standardized using recording sheets with prompt questions.

The term '*ahu* landscape' here refers to the landscape setting of an *ahu*. This landscape geography includes both the backspace at the rear of an *ahu*, and the front space that classically comprises a plaza and inland associated settlement and land use structures, and also the lateral inter-*ahu* landscape.

The 2009 season

The overarching aim of the 'ahu landscapes' fieldwork is to situate *ahu* spatially and interpretatively in the wider context of their related landscapes of ceremonial, settlement, agriculture and industrial activities — particularly the places from which they draw the raw materials for their massive construction. In contrast, extant *ahu* research has focused on *ahu* as isolated entities, particularly focusing on their structural architecture and typology. They have been ascribed chieftain territories, but this has mainly been by mathematical and computer-generated spatial and cluster analyses. Fieldwork on the landscapes zones associated with individual *ahu* with the specific objective of elucidating the socio-economic and conceptual articulation of the places that they are situated within has not occurred. This has resulted in a separation of *ahu* from their wider associations with quarrying activities and utilisation of land and sea resources, which in total are potentially sacred and ideologically related. This absence of spatial contextualisation in *ahu* fieldwork has narrowed the possibilities of their interpretation and resulted in a focus on their role as memorials of ancestors and repositories for the dead as much as their role in living landscapes. The specific objectives of the January/ February 2009 field season detailed below were developed with the above in mind.

2. 2009 Participants/ Authorities

In 2009 the Rapa Nui Landscapes of Construction Project was directed by Dr Sue Hamilton of the Institute of Archaeology, University College London, Susana Nahoe of the *Corporacion National Forestal*, Rapa Nui, Dr Colin Richards of the University of Manchester and Francisco Torres H. of the *Museo Antropológico P. Sebastián Englert*). The 2009 season was funded by the Bank of Santander and University College London. The 2009 survey team comprised Sue Hamilton, Mike Seager Thomas and Ruth Whitehouse, all of UCL.

3. Objectives for the 2009 season

To consider the *ahu* in the context of the Landscapes of Construction Project's concurrent excavations at the red scoria quarry of Puna Pau by, firstly, mapping the distribution of red scoria from the quarry where found within the 2009 zones of the *ahu* survey and, secondly, isolating and tracking existing data on the identification and distribution of red scoria material culture — *pukao*, *ahu* facia blocks, small red scoria *moai*, and the transport of red scoria fragments, and drawing these together in a single accretional database (*Appendix 1; digital appendix 1*). Questions that may thus be resolved include:

- Is the distribution of red scoria island wide and in similar quantities or is there spatial and therefore socio-economic disparity in regional access to red scoria?
- Is Puna Pau red scoria a wholly sacred material with specific and spatial contexts of use on ahu and their associated landscapes, as generally synthesis suggests?

To map the evidence for and consider the implications of the stone geologies and quarries used in the construction of *ahu* platforms, comparing and contrasting the evidence for the use of stone from the proximate landscape with that for 'special' stone transported over longer distances for special purposes. (These latter include scoria *pukao* and facia casings, *moai* stone and perhaps 'selected' flow lavas used for dressed building stone or *paenga*). Questions that can be asked include:

- Are *ahu* situated in industrial landscapes of quarrying during their construction?
- Does the construction of an *ahu* transform its immediate landscape?
- Is there a separation ideologically between stone that is transported to site and stone that was used locally?
- What are the place-associations and thereby potential ideological associations of the various stones and materials used in the construction of an *ahu*?

To consider the extent to which the *ahu* landscapes are linked to the sea and are at strategic points of access to the sea and its resources. This interest reverses the long-term focus of research on *ahu* as ceremonial platforms facing inland over presumed territories of agricultural land and the famous quarries from which their most well known components, statues and *pukao* were gained. Past work has emphasized a primary seaward orientation of early Rapa Nui resource acquisition but has failed to consider in its fieldwork that *ahu* and their associated landscapes have architectural links with the sea. Questions relating to this include:

- Is there architecture at distinct access points to the sea?
- Are *ahu* situated in specific locations with respect to the sea?
- Are sea materials and sea metaphors recurrent in the architecture of *ahu* and their landscapes?

4. Interpretative Context

The most all-encompassing, modern field research on the island's *ahu* is that of Martinsson-Wallin (1994). She focused on logging the structural characteristics of coastal *ahu* for cluster analysis. Alongside general survey, there has been a limited excavation intervention particularly of hugely ruined, threatened or structurally unstable *ahu*, with a focus on burial chambers of the post contact period (e.g. Mulloy 1961; 1970; Vargas *et al.*

2006). The locations of the island's *ahu* have also been recorded within broader mapping projects notably the *Atlas Arqueológico de Isla de Pascua* (Cristino *et al*. 1980). *Ahu* distributions and their associated recurrent groupings of specific structural have also provided the basis for spatial analysis of Rapa Nui territorial groupings, using the concept that larger image *ahu* provide indices of clan superiority and the idea that *ahu* are at the centres of clan territories (McCoy 1979; Shepardson 2005; Stevenson 2002). These studies have had a significant role in elucidating the distribution of the island's monuments and considering the basic structures of its social organisation and some details and chronologies for individual *ahu.* Since the 1990s there has been an important investigative shift to excavating and mapping Rapa Nui's ancient settlement and agricultural remains (Stevenson 1995). This has revealed the sophistication of landscape management in Rapa Nui's post-deforestation phase but while this phase is in part concurrent with the middle and later periods of *ahu* use, the interface of such landscape occupation with the use and conceptualisation of *ahu* still remains unconsidered. Overall, the majority of extant studies have produce rather general understandings of island organisation and do not consider the meanings embedded in *ahu* landscapes as opposed to their socio-economic functions. In terms of the symbolism of *ahu* architecture and the use of selected construction materials, work by Martinsson-Wallin (2002) and Van Tilburg (1986) provide ideas concerning sea symbolism and the colour significance of red scoria that can be further developed and investigated using the systematic survey methods of the work here described. A phenomenological (body-centred understanding of space and place) perspective alongside a contextual landscape based study of *ahu* is here framed as the logical way forward.

5. Methodology

Pukao*/ Puna Pau red scoria survey*
For the *pukao*/ Puna Pau red scoria survey, the locations of all identifiable *pukao* and Puna Pau red scoria of small boulder or larger size (>256 mm across) were geolocated using a *Silva Multi Navigator* GPS and a textual record of their morphologies and locales made. The grid system used — UTM 12 WGS84 — is that used by *CONAF* and by Chile's *Istituto Geografico Militare*, for the most recent mapping of the Island.

Phenomenological walkover survey (PWS)
The PWS was carried out using the now standard techniques of phenomenological survey developed by Dr Hamilton and Professor Whitehouse (Hamilton & Whitehouse 2005). Specifically, it involved walking 10 selected, *c*. 150 m deep transects of the Rapa Nui coastline (1–10) and two selected *c*. 200 m^2 *ahu* zones (11 & 12). Within these transects the locations of archaeological sites (structures — *umu*, *hare paenga*, *manavai* etc., artefact concentrations and special individual artefacts — notably a very large *mata'a* from Hanga Maihiku) were geolocated as above. This was combined with prompt-led textual recording of their locale-specific characteristics (*Table 1*), particularly of *ahu* and coastal 'slipways' (paved routes to the sea). For *ahu* in addition, where possible without trespassing on forbidden areas, a record was made of their materials of construction.

Ahu name:		GPS location of *ahu*:	
Rear/ backspace of *ahu*			
Time:	Date:	Tide:	Weather conditions:
1	Survival and size of back space		
2	Relationship of architecture to sea		
3	Relationship of backspace to seascape		
4	Access to backspace		
5	*Ahu* and crematoria: types of structural materials and landscapes places from which they come		
6	Crematoria related to 1 and 5 & location		
7	Surface finds distribution – obsidian, basalt tools, coral pieces etc		
8	Consideration of the past visibility and inter-visibility characteristics of the back space and its architecture		
9	Sound and smell characteristics		
10	Other		
Front of *ahu*/ plaza area			
Date:	Time:	Tide:	Weather conditions:
1	How the plaza area is defined: correspondence with landscape features, levelling, clearance etc.		
2	Possible approaches to he plaza and their characteristics of topography, access, sound, vision etc.		
3	Evidence of structures on the plaza – position, materials, visibility and other sensory characteristics		
4	Evidence of slipways and topographic access to the sea		
5	Surface finds distribution		
6	Structural materials and landscape locations from which they come		
7	Consideration of the past visibility and inter-visibility characteristics of places and features associated with and beyond		
8	Other		
***Ahu* territory inland of plaza**			
Date:	Time:	Tide:	Weather conditions:
1	Landscape characterisation – topographic boundaries, relationship		
2	Present and past visual relationships of the *ahu* landscape area to		
3	Sensory awareness of sea		
4	Prominent rocks/crags/discrete topographic features		
5	Structures: caves. *poro* pavements, boat houses, *umu*, *manavai,* rock mulching etc – and their topographic position, visibility, sound and other sensory information, and materials of		
6.	Distribution of surface finds		
7	Other		

Table 1.
Ahu landscape characterization prompt sheet

The transects and zones surveyed are:

Motu Hitara–Hanga Hahave (1)	658624/6993581–659458/6994025
Hanga Hahave–Papa Tanga Roa A Hiro (2)	659447/6994130–659634/6993819
Motu Opope–Ura Uranga T Mahina (3)	664296/6995404–664511/6995796
west of Motu Opope (4)	663852/6995360–664203/6995425
Te Ipu Peu–Anakena (5)	666065/7004426–666173/7004283
unnamed Englert 79–Te Ipu Peu (6)	665656/7004612–665865/7004537
Te Ipu Peu (7)	665930/7004613–666100/7004424
unnamed Englert 77–unnamed Englert 79 (8)	665195/7004692–665582/7004651
La Perouse (9)	668454/7002673–669045/7002594
Te Pito Kura (10)	668252/7002780–668329/7003031
Hanga Maihiku (11)	668914/6997044 (vicinity of)
Maitaki Te Moa (12)	658677/7004303 (vicinity of)

These transects and zones encompass four widely separated geographical zones of the island and comprise a wide and moderately representative sample of its differing social and geological landscapes.

6. Results

Pukao/ *Puna Pau red scoria survey*
To date the pukao/ Puna Pau red scoria survey has recorded Puna Pau scoria of small boulder or larger size (including complete *pukao*) in more than a 100 locations across 22 sites, extending the known/ published distribution of this important material (*Appendix 1*). Whereas *pukao*, *ahu* facia blocks and other *paenga* in Puna Pau red scoria have a limited distribution, large pieces of Puna Pau red scoria reached further afield, either directly from the quarry, or indirectly via *ahu* to which they had previously been transported — usually in association with late, probable inhumation burials. The largest *pukao* outside the quarry lie at the limits of their distribution (e.g. at Ahu Te Pitu Kura). Beyond the distribution of *pukao*, however, the size of Puna Pau red scoria appears to diminish with distance from the quarry (comminuted Puna Pau red scoria is widely recurrent in crematoria, both isolated and associated with *ahu*, throughout the island including the area beyond the distribution of boulder sized pieces of red scoria — e.g. on Poike).

Preliminary interpretation
Like *moai*, large *pukao* from Puna Pau reached prestigious *ahu* throughout the island, irrespective of their distance from the quarry. The role/ value of red scoria from Puna Pau, however, which was in some way associated with death and status, caused it to be carried much further afield, most probably

indirectly via the *ahu* to which it was originally transported, from the limit of whose distribution, its size diminishes. It is postulated here that reduction of, and the pock-marking of *pukao* at *ahu* may be a consequence of this process. This type of treatment of red material is wholly consistent with what we know of the treatment of red objects and materials elsewhere in, particularly, eastern Polynesia.

Ahu landscapes

The 10 transects and two *ahu* zones surveyed incorporated the landscapes of 31 *ahu* on the northwest, north and south coasts of the island, all of which were systematically investigated. 58 separate quarries on two visibly distinct geologies — flow lava and dark red scoria — were identified, including one quarry area used in the production of *toki* (the first six sites noted in *Appendix 2*). Two vesicular lava quarries contained partially dressed, in situ *ahu*-sized *paenga* (e.g. *Figure 1; Appendix 2*).

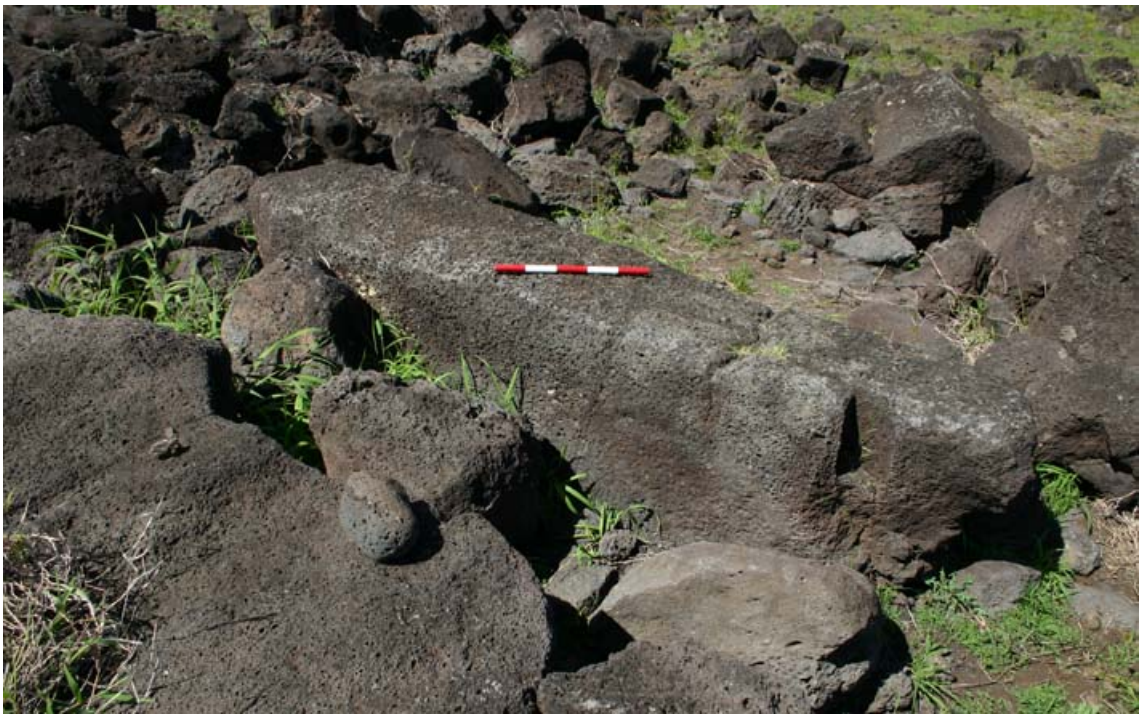

Figure1.
Partially dressed paenga *in quarry near Ahu Te Pitu Kura*

In all cases the stones used in *ahu* — except for Puna Pau red scoria and Rano Raraku tuff — were also used in proximate 'domestic' domestic structures. Ten probable and possible 'slipways'/ paved routes to the sea, many in an advanced stage of decay (*Figures 2 & 3*), and a number of other water features were identified (*Appendix 3*). The phenomenological relationships of these to each other and to the wider landscape in which they were situated were explored. In addition, the locations of hundreds of other sites were identified and plotted (Appendix 4).

Figure 2.
Example of partly destroyed, coastal 'slipway' on west side of Ahu Tetenga

Figure 3.
Arena-like "canoe slipway" of the west side of Ahu Hanga Tee o Vaihu

Preliminary Interpretation

Our study of these features is at an early stage and only a preliminary interpretation of them can be given here. This is based primarily on four observations: 1) that with one or two exceptions, at some time, all of the transects had been fully utilized up to the shore itself, 2) that although large numbers of features are associated physically and perceptually with *ahu* (including both quarries and 'slipways'), many others are not, 3) that *ahu* and domestic structures shared many of their stone sources, and 3) that many everyday domestic activities, such as the manufacture of obsidian tools, occurred close to or even *on ahu*. Insofar as it demonstrates that the coastal zone, where most *ahu* are located, was not *always* reserved for them, and activities associated with their construction (quarrying) and use ('slipways') occurred side by side with everyday activities, this suggests to us the full integration of ritual with domestic life on the island, and equally the potential for certain aspects of construction activities and tool making to have had sacred connotations. As for the question: does the construction of an *ahu* transform its immediate 'natural' landscape, the answer is clearly yes. In particular proximate rock outcrops were broken up for the production of *ahu* building stone and large quantities loose stone was removed from the plaza areas. The evidence for tool making observed by us, need not be contemporary with the structures with which it was associated of course. Nonetheless it shows that at some point, the association of the two was acceptable to some people and can be contrasted with the view of contemporary islanders that these sites are 'out of bounds'.

7. Conclusion/ Discussion

The 2009 *Ahu* Landscapes Survey had three particular foci of study from which specialist databases have been extracted (*Appendices 1–4*).

The mapped distributions of Puna Pau red scoria *pukao*, facia and larger pieces of red scoria suggest evidence for both primary and secondary distribution of the material. While most of the *pukao* are known, an on-going database of other finds of Puna Pau red scoria — facia, *paenga,* and fragments (boulders and smaller pieces) — for example associated with *ahu* plaza and crematoria, together with any further *pukao* discoveries, should be undertaken as part of future work. This would allow us to better understand the mechanisms of the distribution and use of Puna Pau red scoria and its wider associations beyond its use for *pukao*. Identification and mapping of the use of other types of red scoria and the possible sources would be helpful in providing complementary data.

Investigation of quarrying activities has traditionally focused on the production of *moai* and *pukao*. The distribution of artefacts and stone gathering and quarrying directly proximate to *ahu* indicates that *ahu* were situated at the centre of a range of construction activities and that these activities require more consideration — both in terms of mapping and identification and in terms of interpreting the scale, nature and social organisation of stone quarrying as a whole on the island.

The evidence for a coastline architecture associated with access to the sea (ramps/ slipways) and the acquisition of drinking water through construction of sea-edge sumps near the water table emphasizes the importance of the coastal zone and suggests that further research and

interpretation of the relationship of ahu with the control of sea access would be of value.

Surveyors: Sue Hamilton, Mike Seager Thomas & Ruth Whitehouse

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Appendix 1. Findspots of Puna Pau Red scoria of small boulder or larger size

(updated 2014)

Feature	Site name	Easting	Northing	Complete	Comment
paenga	Tahai	655859	6997087	yes	in kerb at base of *ahu* ramp
block	Tahai	655878	6997136	yes	2 blocks in sea edge of ramp
pukao	Tahai (Ko Te Riku)	655925	6997152	yes	with topknot (replacement — original in cemetery, complete)
facia	Te Peu	657381	7001401	yes	upright in ramp, not in situ
facia	Te Peu	657395	7001667	yes	on *ahu* platform (identified from aerial photo)
pukao	Te Peu	657397	7001407	unknown	in burial
paenga	Te Peu	657408	7001397	yes	
block	Te Peu	657590	7001383	unknown	unidentified boulder
pu paenga	Te Peu	657604	7001404	yes	kerb around *hare paenga* pavement
pu paenga	Te Peu	657605	7001381	yes	kerb around *hare paenga* pavement, includes one reused *pu paenga*
pukao/ *taheta*	Vinapu 2	657808	6992952	yes	massive with head hollow and petroglyphs. On or in *ahu* pavement
moai	Vinapu 2	657826	6992956	yes	aberrant *moai*
pukao	Vinapu 2	657834	6992946	yes	complete with head hollow towards one side
facia	Vinapu 2	657834	6992946	yes	in situ
pukao	Vinapu 2	657836	6992942	no	approx half of large *pukao* with vestigial topknot
pukao	Vinapu 2	657836	6992981	yes	medium-sized complete *pukao* with small topknot
pukao	Vinapu 2	657839	6992938	yes	fragment
pukao	Vinapu 2	657855	6992959	yes	small topknot oval
pukao	Vinapu 1	657867	6993021	yes	complete. Possible hat hollow
pukao	Vinapu 1	657867	6993024	yes	complete, with vestigial topknot
pukao	Vinapu 1	657872	6993031	no	fragment with vestigial top knot
block	Te Nui	657900	7002746	unknown	small boulder west front of *ahu*
pukao	Puna Pau	658084	6996119	yes	
pukao	Puna Pau	658088	6996114	yes	
pukao	Puna Pau	658099	6996117	yes	
pukao	Puna Pau	658103	6996100	yes	
pukao	Puna Pau	658103	6996110	yes	
pukao	Puna Pau	658129	6996142	yes	
pukao	Puna Pau	658129	6996168	yes	
pu paenga	Te Peu (upslope of)	658132	7002562	no	in *hare paenga* pavement

Feature	Site name	Easting	Northing	Complete	Comment
pukao	Puna Pau	658145	6996143	yes	
pukao	Puna Pau	658145	6996188	yes	
pukao	Puna Pau	658153	6996197	yes	
pukao	Puna Pau	658168	6996211	yes	
pukao	Puna Pau	658170	6996213	yes	
pukao	Puna Pau	658172	6996228	yes	
pukao	Puna Pau	658178	6996217	yes	
pukao	Puna Pau	658179	6996230	yes	
blocks	Ana te Pahu	658180	7000210	unknown	in fill of stone platforms in mouth of cave
pukao	Puna Pau	658184	6996230	yes	
pukao	Puna Pau	658188	6996231	yes	
pukao	Puna Pau	658188	6996235	yes	
paenga	Urenga	658407	6995415	yes	in rear wall of platform
paenga	Te Peu (upslope of)	658461	7003550	yes	small weathered elongate boulder without *pu* at end of run of *pu paenga* in *hare paenga*
pukao/ *taheta*	Vai Mata	659051	7004998	yes	burial with associated poro pavement
pukao	Vai Mata	659255	7005285	unknown	in *ahu* ramp
facia	Vai Mata	659258	7005288	yes	in *ahu* ramp
taheta	Vai Mata	659277	7005164	yes	near road *moai*
facia	Hanga Hahave	659484	6994021	yes	in rear platform
pukao	Mata Ketu	659738	6995022	yes	with topknot and head hollow
facia	O Ure	659777	6994093	yes	under stomach of westernmost *moai*
pukao	Hanga Poukura	660492	6994009	no	fragment with topknot, mostly buried
pukao	Hanga Poukura	660496	6994007	yes	half buried with topknot
block	Hanga Poukura	660519	6994003	no	large semi-circular fragment
pukao	Hanga Poukura	660528	6994020	yes	*pukao* with vestigial topknot and vertical striations/cut marks
pukao	Hanga Poukura	660540	6994025	yes	with vestigial topknot and cupmarks and striations
pukao	Hanga Poukura	660547	6994037	yes	with vestigial topknot, cupmarks, striations and numerous holes
pukao	Hanga Poukura	660553	6994028	yes	with vestigial topknot and cupmarks and striations
block	Hanga Poukura	660602	6994021	no	sea weathered scoria lump
blocks	Tarakiu	661947	6993955	unknown	in crematorium to rear of main *ahu*
pukao	Tarakiu	661981	6994028	yes	with faint vestigial topknot (small) and pock marks
paenga	Tarakiu	661988	6993981	yes	front kerb of ancillary *ahu*
pukao	Hanga Te O Vaihu	662227	6994131	no	fragment, being quarried on *ahu*
block	Hanga Te	662235	6994219	no	in beach burial

Feature	Site name	Easting	Northing	Complete	Comment
	O Vaihu				
pukao	Hanga Te O Vaihu	662248	6994168	yes	with topknot and petroglyphs - the one from the sea
pukao	Hanga Te O Vaihu	662251	6994173	no	large fragment in burial
pukao	Hanga Te O Vaihu	662259	6994171	yes	drum-shaped with hat hollow. About two thirds present
pukao	Hanga Te O Vaihu	662259	6994174	no	fragment
pukao	Hanga Te O Vaihu	662260	6994142	no	half in grave
pukao	Hanga Te O Vaihu	662261	6994167	no	half, formless
pukao	Hanga Te O Vaihu	662277	6994137	yes	large with vestigial topknot, very pocked
pukao	Hanga Te O Vaihu	662278	6994130	yes	large, pocked, Englert 515
pukao	Hanga Te O Vaihu	662285	6994134	yes	half embedded
facia & blocks	Papa Tekena	663926	7005823	yes	with groove. Formerly on *moai* head in front of *ahu* near group of scoria boulders, coral and *moai* bits
block	Ura Uranga Te Mahina	664487	6995886	no	fragment
pukao	Ura Uranga Te Mahina	664578	6995866	yes	with topknot, about two thirds present
pukao	Ura Uranga Te Mahina	664593	6995857	unknown	in burial in ramp
pukao	Ura Uranga Te Mahina	664600	6995886	no	fragment
pukao	Ura Uranga Te Mahina	664602	6995856	no	fragment among statues, Englert 553
pukao	Ura Uranga Te Mahina	664606	6995869	yes	complete. Embedded in rubble below ramp
pukao	Aka Hanga	664810	6995956	no	large fragment with hat hollow
pukao	Aka Hanga	664810	6995960	no	half with Make Make, Englert 562
pukao	Aka Hanga	664813	6995956	yes	two thirds present, with petroglyphs, Englert 561
pukao	Aka Hanga	664826	6995957	yes	with head hollow
pukao	Aka Hanga	664827	6995986	unknown	vestigial topknot of *pukao* protruding from ground, Englert 55
pukao	Aka Hanga	664828	6995952	yes	with vestigial topknot
pukao	Aka Hanga	664828	6995988	no	top part of vestigial

Feature	Site name	Easting	Northing	Complete	Comment
					topknot of *pukao* and fragments capping grave, Englert 558
pukao	Aka Hanga	664832	6995987	yes	complete with vestigial topknot, toppled into burial, Englert 554
pukao	Aka Hanga	664838	6995991	yes	quarried (blocks taken off) but near complete
paenga	Hanga Ohiro	665143	7004756	unknown	3 boulders, 1 with dressed faces, in sub-circular cluster — (?) burial
block	Te Kahu Rea	665541	6997333	unknown	small cylindrical boulder in front of *ahu* (AMS119)
pu paenga	Oroi (vicinity of)	665793	6997004	yes	very small. In rear kerb of *hare paenga* (AMS179)
paenga	Oroi (vicinity of)	665895	6996893	yes	weathered, roughly dressed *paenga* c. 30 cm across in rubble comprising hare moa (AMS185)
block	Unnamed *Ahu*	666089	7702017	unknown	small boulder near *ahu*
facia	Tuta'e	666172	6997105	yes	on rubble to the rear of manavai complex AMS137
pukao	Anakena	666335	7004215	yes	re-erected conical-shaped *pukao*
pukao	Anakena	666335	7004215	yes	re-erected drum-shaped *pukao*
pukao	Anakena	666335	7004215	yes	re-erected *pukao* with topknot
pukao	Anakena	666335	7004215	yes	re-erected *pukao* with topknot
pukao	Anakena	666364	7004192	yes	drum-shaped
pukao	Anakena	666364	7004192	yes	conical
pukao	Anakena	666500	7004149	yes	away from *ahu* with groove around middle
pukao	Runga Vai	666634	6996918	no	*pukao* hat hollow in *ahu* wing
pu paenga	Ko Te Tupa	666848	7004648	yes	in front kerb of *hare paenga*
blocks	Tetenga	667159	6997159	unknown	small formless boulders
pukao	Ovahe	667237	7003997	yes	upright drum c. 0.5m across — ? small *pukao*. In sea on of small bay below cave enhanced with *moai* stone; associated with further *moai* stone
pukao	Hekii 1	668359	7002536	yes	huge formless *pukao* upslope of plaza
pukao	Te Pito Te Kura	668385	7002964	yes	drum-shaped with pock-marks
facia	Hekii 3	668508	7002688	no	fragment
pukao	Hekii 1	668533	7002579	yes	with topknot and hat hole
pukao	Hekii 1	668539	7002634	yes	with exaggerated topknot

Feature	Site name	Easting	Northing	Complete	Comment
					on made up plaza
pukao	Hekii 1	668549	7002651	yes	with topknot. Large hole in top
pukao	Hekii 1	668550	7002646	yes	small semi conical
pukao	Hekii 1	668553	7002652	yes	with topknot and head hole on *ahu* wing
facia	Hekii 1	668564	7002627	yes	re-used on platform
pukao	Hekii 1	668567	7002642	no	fragment
facia	Hekii 3	668569	7002653	yes	
block	La Perouse	668674	7002731	no	on edge of sea
pukao	Hanga Maihiku	668908	6997071	yes	small complete *pukao* with head hollow, 'face' and hole
pukao	Tuu Tahi	669410	6997191	yes	drum-shaped with vertical striations, 'cup' marks and other cuts
pu paenga	Tuu Tahi	669506	6997407	yes	small boulder with possible *pu* at end of run of *pu paenga* in *hare paenga*
pukao	One Makihi	670130	6997109	yes	complete in burial with crushed residual topknot, 'cup' marks and slab removal
facia	One Makihi	670130	6997109	yes	contiguous in situ facia on the *ahu* platform
pukao	One Makihi	670132	6997102	no	formless lump of probable *pukao* on *ahu* ramp
pukao	One Makihi	670134	6997096	yes	large boulder of probable *pukao* on *ahu*
pukao	One Makihi	670151	6997106	yes	small conical *pukao* at the interface of the wing and the main *ahu*
pukao/ *taheta*	Tongariki	670571	6998562	no	like a *pukao* sliced horizontally with central *taheta* near rock art panels & tongariki 1
pukao	Tongariki	670692	6998405	yes	with vestigial topknot and cup marks
pukao	Tongariki	670692	6998405	yes	with vestigial topknot and cup marks
pukao	Tongariki	670692	6998405	yes	with vestigial topknot and cup marks
pukao	Tongariki	670692	6998405	yes	with vestigial topknot and cup marks
pukao	Tongariki	670692	6998405	yes	with vestigial topknot and cup marks
pukao	Tongariki	670692	6998405	no	fragment
pukao	Tongariki	670692	6998405	no	fragment
pukao	Tongariki	670777	6998431	yes	restored with vestigial topknot
pukao	Parangia	671166	6998722	yes	cist with rectangular blocks
facia	Poike	674782	7001668	yes	in erosion gully with poro close to area of flow lava *paenga* quarrying

Appendix 2. Locations of Coastal Quarries

Transect/ zone	Easting	Northing	Stone type	Morphology
1	658695	6993895	flow lava	adit
1	658713	6993935	flow lava	adit
1	658713	6993935	flow lava	adit
1	658727	6993984	flow lava	adit
1	658745	6994019	flow lava	adit
1	658767	6994014	flow lava	adit
1	658901	6993976	flow lava	pit
1	658959	6994022	flow lava	bay
1	659060	6993933	flow lava	
1	659100	6993940	flow lava	
1	659119	694054	flow lava	
1	659132	6993910	flow lava	
1	659240	6993927	red scoria	outcrop
1	659296	6993970	red scoria	outcrop
2	659327	6994143	red scoria	
2	659373	6994157	flow lava	
2	659571	6993917	flow lava	with propped stone
2	659611	6993933	flow lava	minor
2	659623	6994069	flow lava	long multiquarried crag to east of *ahu* plaza
3	664303	6995812	flow lava	crag
3	664304	6995800	flow lava	crag
3	664306	6995833	flow lava	crag
3	664307	6995815	flow lava	crag
3	664307	6995815	flow lava	crag
3	664309	6995837	flow lava	crag
3	664335	6995849	flow lava	crag
3	664440	6995821	flow lava	
3	664484	6995770	flow lava	
3	664487	6995801	flow lava	crag
4	663834	6995345	flow lava	with later *manavai*
4	663835	6995357	flow lava	with later *manavai*
4	663896	6995253	flow lava	
4	663934	6995275	flow lava	
5	665922	7004422	flow lava	
5	665940	7004422	flow lava	
5	665971	7004318	flow lava	crag
5	665991	7004388	flow lava	
5	665993	7004444	flow lava	
5	666019	7004346	flow lava	stripped
5	666025	7004360	flow lava	
5	666028	7004302	flow lava	crag
5	666050	7004216	flow lava	large; crag
5	666065	7004426	flow lava	
5	666173	7004283	flow lava	zone around *ahu*
7	665938	7004465	flow lava	
7	665938	7004567	flow lava	small
10	668252	7002780	flow lava	extensive. On the east side of Te Pito Kura. Half finished large *paenga* in situ. Columnal stone being split off by putting small stones in the cracks

Transect/ zone	Easting	Northing	Stone type	Morphology
10	668418	7002849	flow lava	
10	668490	7002871	flow lava	
10	668496	7002848	flow lava	
11	668680	6997148	flow lava	crag
11	668687	6997199	flow lava	crag; with *toki*
11	668721	6997209	flow lava	dome; *toki* flakes nearby
11	668731	6997098	flow lava	quarry face
11	668737	6997181	flow lava	with *toki* fragments
11	669040	6997063	red scoria	not certainly quarried but matches locally utilized material
12	658750	7004358	flow lava	
12	658803	7004280	flow lava	with half partially worked *paenga*
Poike	674743	7001694	flow lava	with half partially worked *paenga*

Appendix 3. Coastal sea architecture

(updated 2014)

Site name	Transect/ zone	Easting	Northing	Description of architecture	Access to the sea	Associated *ahu*	Description of location
Tahai		655883	6997139	paved ramp to sea and paved quay. The blocks are sea worn but not rounded poro	good	Vai Uri and Tahai	between the ahu
Vinapu		658000	6992900	cliff route to sea with paving at base — identified by Heyerdahl	good	Vinapu	above shingle beach at base of cliff
Motu Hitara	1	658688	6993796	traces of *poro* paving in section at base of cut down to the sea (recent bulldozing has left traces of an older cut)	good	Motu Hitara	above shingle beach at base of cliff
Vaihu		662173	6994268	*poro* paved semi circular arena leading to sea and shoreline spring; kerbed on its inland side	good	near Hanga Tee	in Vaihu bay to the west of Ahu Hanga Tee
Hanga Tee		662210	6994150	stone piles creating protected channels in bay	poor	Hanga Tee	in Vaihu bay to the west of Ahu Hanga Tee
Hanga Tee		662215	6994130	*poro* pavement	moderate	Hanga Tee	at edge of ahu plaza on edge of Vaihu bay
none	3	664375	6995643	semi-circle of set stones and a scatter of *poro*	moderate	poor	close to the shore west of *ahu*
Akahanga		664773	6996011	*poro* paving below rear wall of ancillary *ahu*	good	unnamed ancillary *ahu*	top of rocky beach in bay
none	8	665511	7004746	arena-like paved area at top of cliff leading into narrow path, with discontinuous paving down to the beach below. Built of *poro* and small flow lava boulders	good for people	none	slight bay in cliffs on north coast, west of the *ahu*
Te Ipu Pu	7	665989	7004546	two piled stone lobes at edge of bay associated with spring	poor	Te Ipu Pu	small round bay to the east of the *ahu*
Anakena	5	666156	7004323	arena-like paved area diffusing into sandy beach	good	Ihu Arero	on west side of bay, to the left of and behind the *ahu*
Hanga Tetenga		667155	6997155	*poro* ramp to sea on west side of *ahu*	good	Tetenga	on west side of *ahu* leading to rock beach

Site name	Transect/ zone	Easting	Northing	Description of architecture	Access to the sea	Associated *ahu*	Description of location
Te Pitu Kura	10	668329	7003031	paved ramp to small bay — identified by Heyerdahl	good	Te Pitu Kura	west side of small rocky bay to the west of the *ahu.* Ramp runs parallel to the shore
La Perouse	9	668657	7002735	rectangular paved and walled hollow sloping towards the sea — 'water sump'	none	Hekii complex	close to the shore to the west of modern slipway
La Perouse	9	668685	7002683	poro paved hollow — 'water sump'	none	Hekii complex	close to the shore to the west of modern slipway
Hanga Maihiku	11	668697	6997031	coastal spring with no visible architecture	moderate	yes	on west of bay just below shore line
La Perouse	9	668708	7002638	modern slipway and quay with no visible (prehistoric) architecture; poro paving to one side	good	Hekii complex	round bay
Ra'ai	9	669157	7002646	arena-like paved area leading to inlet. Built of poro and small flow lava boulders	good	Ra'ai	rectangular inlet in bay northeast of the *ahu*
CHECK NAME		669510	7002636	patch of *poro* paving	good	yes	west of and (?)around small bay with rocky beach. In front of and to the west of *ahu*
Mauku Roa		670008	7002502	Concentration of *poro* possibly leading down to sea	good	none	small bay with modern water pump
Hanga O Miti/ Taharoa		670374	7002117	*poro* leading down to sea from revetment; further stone settings leading down towards beach upslope and to west adjacent to western *ahu*	moderate to good	yes	bay between two *ahu* with revetment at top of beach
Tongariki		670839	6998405	linear pile of stones partially blocking inlet	good	Tongariki	small protected inlet in bay behind *ahu*
Mahatua		671284	7002199	patch of *poro* paving	poor	Mahatua	against the rocky shoreline to the west of the *ahu*